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# Resilience in the context of development: Introduction to the special issue

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Resilience in the context of development: Introduction to the special issue

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### Abstract

As an introduction to this special issue, we define resilience as the capacity of a dynamic system to adapt successfully to threatening circumstances, and we briefly note the history of resilience studies as embedded within the broader field of developmental science. We then elaborate on four developmental principles central for the study of resilience and highlight the importance of early adolescence as a developmental period of particular opportunity for change. Finally, we introduce the five papers of this special issue, each of which presents exciting new work on resilience processes during early adolescence and speaks to aspects of core developmental principles of resilience science.

### Resilience in the context of development: Introduction to the special issue

Resilience generally refers to the capacity of a dynamic system to adapt successfully to threatening circumstances (Cutuli, Herbers, Masten, & Reed, *in press*; Masten, 2014). When applied to individuals, resilience describes the situation where people continue to show competent function and development despite some negative circumstance that, on average, predicts worse outcomes. Resilience research in the context of development accounts for knowledge of normative developmental processes. It also recognizes factors across different levels of the individual and her environment that influence developmental pathways (Masten & Cicchetti, 2016). In this way, resilience science elaborates on models of positive adaptation to incorporate previously unrecognized factors, refines explanations of how different factors operate through developmental processes, and applies existing models to new populations to explain the varied phenomena of resilience (Luthar, 2006). Unlike studies of risk and poor adaptation, studies of resilience seek to understand the factors that support and protect healthy development even in unfavorable circumstances, with the ultimate promise of applying this understanding to promote resilience in others (Luthar, 2016).

This special issue highlights several aspects of contemporary resilience science, presenting new findings on factors and processes that contribute to positive adaptation. The papers apply developmental principles to diverse contexts of risk, including family homelessness, diabetes, early deprivation, exposure to violence, and stress associated with having a parent in the military. Importantly, each study focuses on resilience in the context of early adolescence, a developmental period marked by the social transition from childhood to adolescence and accompanying reorganization and activation of physiology and psychological attributes (Romero, 2015; Steinberg et al., 2006). The studies also consider how factors at

multiple levels of the individual and her context relate to positive development during early adolescence, spanning genetics, psychology, family, school, and neighborhood. Together the papers incrementally expand understanding of how some young adolescents do well in less-than-optimal circumstances, with implications for efforts to improve outcomes for others in similar situations.

**Resilience: Developmental competence protected from risk**

At its core, the phenomenon of resilience describes when individuals are functioning sufficiently well despite having experienced some risk that threatens positive outcomes. Early studies in resilience science were mainly focused on pointing out that resilience was surprisingly common in many different adverse contexts, such as with children who experienced maternal schizophrenia or poverty (see Masten, 2007). This coincided with a burgeoning of studies on risk, predicting negative outcomes from presence of the risk factors in question. In addition, conceptual and empirical models of age-salient developmental tasks helped to define criteria for developmental competence (see Burt, Coatsworth, & Masten, 2016). These age-salient developmental tasks outline societal expectations for children of different ages, thereby delineating standards for who is doing well and who is not functioning adequately in important areas. Thus, as children develop, the criteria that constitute competence changes accordingly. Together, these two concepts produced the modern conceptualization of resilience as competent functioning despite risk.

Soon resilience researchers shifted their attention from merely documenting the existence of resilience to predicting it. This gave rise to studies that considered varied promotive factors, which are positive influences that can compensate for risks, and protective factors, defined as positive characteristics of individuals or their contexts that better predict positive outcomes when

risk is high (Luthar, Cicchetti, & Becker, 2000; Zimmerman et al., 2014). These factors signify the presence of powerful adaptive systems that help the individual respond to risk and engage in positive adaptation, a marked contrast to studies of risk that focus only on harmful factors that can interfere with healthy development (Masten & Obradović, 2006). Rigorous study has produced a large number of protective factors important for resilience with respect to certain risks and certain outcomes (see Luthar, 2006). While some protective factors are rather specific to particular adversities (e.g., treatment adherence for children with chronic disease), a number seem to protect development in a broad range of risky contexts. In particular, positive relationships with competent adults, strong self-regulation abilities, and good cognitive functioning emerge repeatedly in the literature as protective factors in contexts of varied risk (see Masten, 2014).

### **Resilience as a developmental phenomenon**

The science of resilience is a special case of the science of development concerned with understanding adaptation to risk (Yates, Egeland, & Sroufe, 2003). As such, the theories and principles that govern typical development in low-risk contexts also help to explain resilience, or typical development in higher-risk contexts. We highlight a few developmental principles relevant to understanding resilience as the product of ordinary developmental processes.

First, modern developmental science appreciates that *developmental phenomena are the product of complex and dynamic processes*. Many factors influence developmental processes and, thereby, contribute to the nature of functioning at any given point in time as well as developmental change. The same is true for studies of resilience in development. Accounts of developmental resilience incorporate information at multiple levels of analysis into their explanatory models. They explain developmental changes and functioning through recognizing

the complex action, interaction, and coaction of many factors that together contribute to pathways towards or away from competent functioning over time (e.g., Blair & Raver, 2012; Gottlieb, 1991).

One way that resilience science reflects this complexity is by testing promotive factors, protective factors, and the processes that produce resilience across levels of analysis. These include individual psychological characteristics (e.g., strong self-regulation skills), individual physiological characteristics indicative of good functioning (physiological stress responding and associated inflammatory processes), and ecological factors (positive parenting in the family system, attending an effective school, living in a safe and cohesive neighborhood, experiencing supportive public policies; Masten & Cicchetti, 2016). Furthermore, the individual's broader environment and developmental history contextualize and modulate the relative impact of particular factors on development. Certain protective factors and modes of functioning may be vital in contexts of particular risk, but have little to no effect otherwise. It is also worth noting that many of the most influential protective factors are ordinary features of development, such as warm and structured caregiving, good self-regulation skills, and positive peer relationships (Masten, 2001). Resilience is not an extraordinary individual trait that some people have and others lack; rather it is the end product of complex developmental processes involving common, positive factors that help groups of people avoid the negative implications of risk in their lives.

Second, *competent development constitutes an orderly and cumulative process that prepares the individual for later positive adaptation and continued wellbeing.* Age-salient developmental tasks inherently account for individuals' developmental level when defining social expectations for competent functioning. These developmental tasks also tend to emphasize achievements that will predict good functioning at later points in development. Common age-

salient developmental tasks are behavioral, psychological, and social achievements that act as resources to assist individuals when they are challenged in the future. For example, a common age-salient developmental task of middle childhood is the formation and maintenance of friendships with increasing levels of interpersonal intimacy (Gifford-Smith & Brownell, 2003). This sort of social competence not only creates new social support resources for the child by the time she moves into early adolescence, but also equips her with a foundation to build increasingly complex and new interpersonal relationships, including romantic relationships, that gain salience later in adolescence and through adulthood (e.g., Collins, Welsh, & Furman, 2009). In this way, competent functioning in childhood increases the likelihood of positive adaptation and continued developmental competence in the face of whatever comes next, be it normative challenges and developmental transitions, like assuming greater independence and more responsibilities in the transition from childhood to adolescence, or be it unpredictable or non-normative risks, like the death of a loved one, a natural disaster, or falling victim to violence. By the same accord, negative or maladaptive patterns of functioning can produce an impoverished set of resources with which to respond to challenges, particularly if failure has occurred over longer periods of development. Thus while change is possible at many points in development, improvements towards resilient functioning are more difficult when negative behavioral patterns and circumstances have become engrained.

Following from the above, *development is transactional* such that processes and functioning at one point in time often provoke intermediate changes in other factors, which then influence the likelihood of positive adaptation and functioning at later points in time (Rutter, 2013). For example, middle school students who show more behavior problems may evoke a negative response from competent peers which, in turn, may prompt affiliation with deviant



peers and subsequent increases in severity of poor conduct (Patterson, 1993). Furthermore, a specific sort of transactional process, termed a developmental cascade, describes how problems in one area can compound over time and spill over to poor functioning in other areas. For example, conduct problems in early adolescence contribute not only to continued conduct problems later on, but also to worse academic achievement and attainment later in high school and subsequent increases in depression symptoms (Masten et al., 2006; See also Cutuli, Carvalho Pereira, Vrabic, & Herbers, *in press*; Masten & Cicchetti, 2010).

Understanding transactional progressions of risk is important for resilience research as they suggest key mechanisms in the processes of maladaptation that lead to poor outcomes. Mapping these transactions produces a guide for interventions, outlining when to intervene and what developmental processes to target when aiming to promote resilience for groups at risk. Continuing the above example, interventions can promote resilience by targeting depressogenic developmental processes for children at risk for later depression because of poor conduct in middle school, thereby diverting the developmental cascade (Cutuli et al., 2006). A well-crafted program delivered at the right time targeting key factors can interrupt negative developmental processes and promote resilience.

Finally, *development is marked by periods of differential plasticity* during which different factors are more or less likely to have an influence. Developmental transitions, put simply, are periods during which individuals progress from one developmental period to the next. These transitions tend to involve rapid developmental change, reorganization, and activation at the individual level. They often coincide with changes in societal expectations, including new rights, responsibilities, and more sophisticated developmental tasks. Adolescence, especially early adolescence, is one of these transitional periods. Stress during adolescence is associated with

exaggerated risk for lasting emotional difficulties, conduct problems, less success in relationships, and worse health (e.g., Steinberg et al., 2006). Meanwhile, findings with humans and from animal models affirm that stress during this transition predicts differences in neuroanatomy and functioning that correlates with behavioral outcomes (Karatoreos & McEwen, 2013; Romero, 2015). Experiencing unprotected risk during developmental transitions is more likely to negatively impact development, while positive influences, including protective factors, are especially important to moderate the impact of risk.

### **New findings in resilience science**

The papers in this special issue present findings that further resilience science, with particular emphasis on development during early adolescence:

Steinberg, Anderson, de Wit, and Hilliard (*this issue*) incorporate measurement of positive well-being as one aspect of emotional functioning into models of resilience specific to type 1 diabetes. Disease burden and management occur in the context of development whereby physiological changes associated with puberty (e.g., those contributing to increases in insulin resistance) and sociological and behavioral changes associated with adolescence (e.g., increased independence and decreased parental monitoring) contribute to elevated risk for poor management. While there is a healthy literature on factors that predict resilience for those diagnosed with type 1 diabetes, Steinberg et al (*this issue*) extend consideration to positive well-being. They find that it is associated with several key indicators of early adolescent functioning, both specific to type 1 diabetes (better glycemic control) and more universal among teens (less depression).

Lafavor (*this issue*) considers multiple indicators of cognitive and social/emotional functioning to test hypotheses about resilience with respect to academic achievement among

early adolescents living in a family homeless shelter. Emotional control and social competence were related to better academic achievement beyond effects of effortful control and IQ, two factors prominent in past studies of educational resilience among homeless children. Academic functioning for children experiencing homelessness is influenced by emotional and social factors, in addition to more commonly considered cognitive ones. These findings affirm developmental theories on adaptation that emphasize transactions not only with factors in the individual's context, but also developmental cascades involving intraindividual functioning across domains.

Cohen-Gilbert, Stein, Gunnar, and Thomas (*this issue*) present an extension of traditional explanatory models of resilience in development to test for effects of brain-derived neurotrophic factor (BDNF) genotype. They consider internationally adopted adolescents, a population well known to efforts at understanding risk and resilience in development. They find that the presence of one or more BDNF methionine alleles is related to worse inhibitory control on a task that includes an emotional component as a function of age of adoption, an index of adversity in the form of early deprivation. This affirms a diathesis-stress account of the development of impulsivity whereby genotype interacts with adversity to contribute to the likelihood of resilience or maladaptation.

DiClemente et al. (*this issue*) consider cohesion, an aspect of social support, as a potential protective factor against risk associated with exposure to violence among young, urban African American adolescents. This approach acknowledges an ecological framework wherein development occurs over time within multiply embedded environments that constitute dynamic systems transacting over time. They consider cohesion at multiple levels of adolescents' ecology, namely the family, school, and neighborhood. Family and neighborhood cohesion appear to

protect boys from deleterious effects of exposure to violence when considering different indicators of positive development over time.

Piehler, Ausherbauer, Gewirtz, and Gliske (*this issue*) rigorously test the developmental processes of resilience using a randomized controlled trial of a parenting program for military families with longitudinal assessment. Through targeting parenting, the program was able to increase parental locus of control. In turn, increases in maternal locus of control predicted later benefits for child peer functioning. This study represents an important culmination of resilience science supported by earlier correlational studies suggesting that parenting and parental locus of control are important for child resilience. The longitudinal design with random assignment provides experimental evidence that maternal parental locus of control contributes to resilience. The study also fulfils the promissory note of resilience science: it translates past findings into action that promotes resilience and increases the number of children who do well following adversity.

## **Conclusion**

Conceptualizing resilience as the product of development underscores the complexity of the phenomenon. Scientific models that explain resilience must appreciate and reflect this complexity by understanding that adaptation is a dynamic process occurring not only in the context of contemporaneous risk, but also in the context of individuals' developmental histories; Past successes or failures in age-salient developmental tasks have cumulatively equipped them with resources to meet the demands of new challenges, be they predictable or unpredictable risks. They must acknowledge that the dynamic processes of adaptation can be influenced by a multitude of factors, both positive and negative, spanning genes, physiology, psychology, relationships with family, peers, and others, school settings, religious settings, neighborhoods,

social services, public policies, and beyond. These factors are embedded in traditionally distinct fields which continue to make new discoveries and further understanding about them in isolation, with implications for how they are incorporated in broader developmental models. Furthermore, these factors influence development in complex ways. Plasticity differs based on developmental timing and history, and in a non-independent manner through transactions over time. Within the complexity of developmental science, explanatory models of resilience are continuously evolving, expanding, and sharpening to incorporate new findings into coherent accounts. The findings in this special issue support this process furthering the developmental science of resilience.

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